Supplemental Information for "Interference in Floquet-Volkov transitions"

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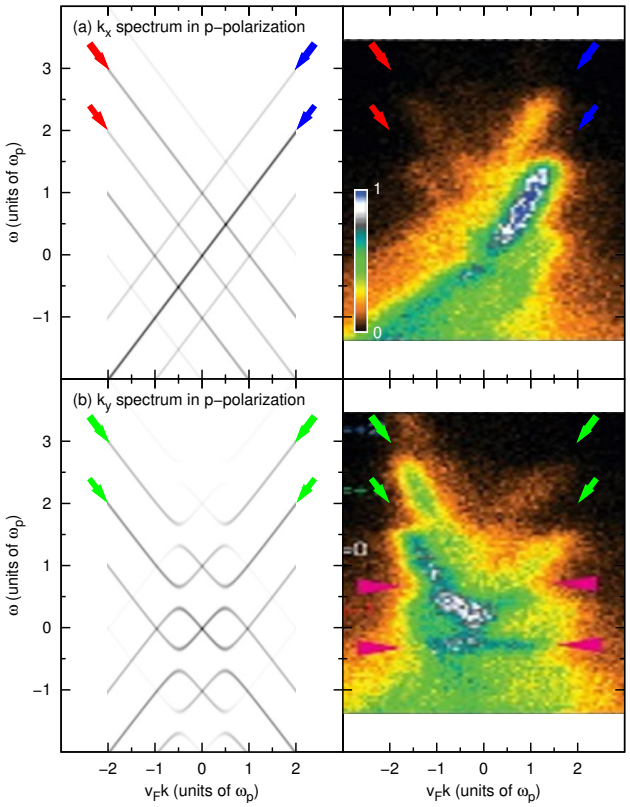

FIG. S.1. Momentum-resolved photoemission spectra from Floquet states in p-polarization. Right panel taken from Science 342, 453 (2013). Reprinted with permission from AAAS (license number: 3426061154477).

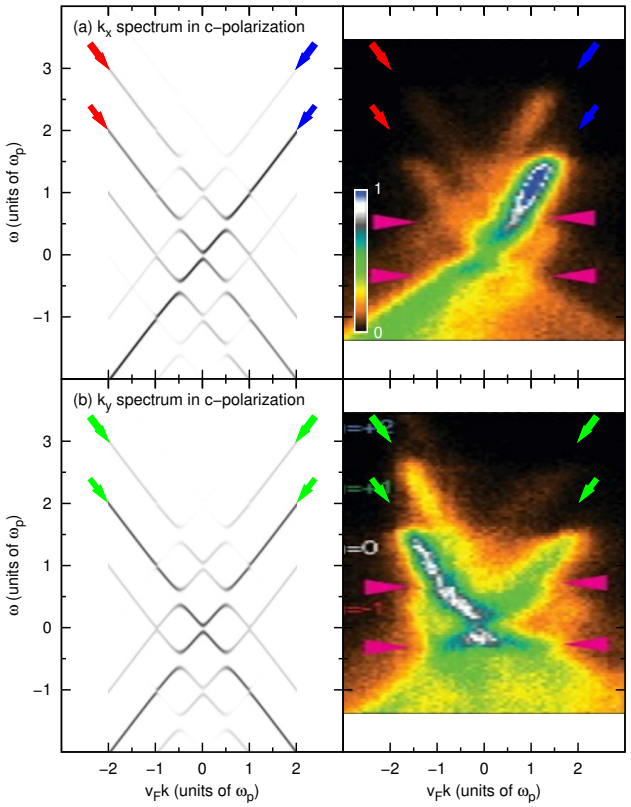

FIG. S.2. Momentum-resolved photoemission spectra from Floquet states in c-polarization. Right panel taken from Science 342, 453 (2013). Reprinted with permission from AAAS (license number: 3426061154477).

Figs. S.1 and S.2 side-by-side compare the theoretical predictions to the experimental observations. Note that there is an asymmetry in photoemission spectra due to the "the coupling between the photoionization UV laser and the spin-orbit texture", making $+k_x$ and $-k_y$ portion for $n = 0$ much stronger than their opposite signed momentum components. Therefore, only the relative ratio between $n = 0$ and $n = +1$ at each k should be compared for the Floquet-Volkov interference. Red, green, and blue arrows denote where the relative intensity of the side band is stronger, intermediate, and weaker, respectively, due to the Floquet-Volkov interference. For example, in Fig. S.1(a) right panel, I_{+1} is comparable to I_0 at $k_x < 0$ whereas I_{+1} is smaller than I_0 approximately by a factor of 4, according to the false color scale. In Fig. S.1(b) right panel, I_{+1}/I_0 should be identical at $k_y < 0$ and $k_y > 0$, which seems to be th case by a visual inspection: I_0 and I_{+1} are false-color-marked in blue and green for $k_y < 0$ and green and yellow for $k_y > 0$, and blue, green, and yellow correspond to 1, 0.5, and 0.25, respectively, in the false-color scale. Similarly, in Fig. S.2(a) right panel, I_{+1} is comparable to I_0 at $k_x < 0$ whereas I_{+1} is smaller than I_0 at least by a factor of 5, according to the false color scale. In Fig. S.2(b) right panel, I_{+1}/I_0 should also be identical at $k_y < 0$ and $k_y > 0$. However, the assessment above is only visual and qualitative, and a further analysis of the raw data will be needed for a quantitative comparison.

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